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RESEARCH DESIGNED TO IMPROVE INSTITUTIONS OF HIGHER LEARNING.

BY- BRUMBAUGH, A.J.

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THIS DOCUMENT DISCUSSES THE BROAD AREA OF INSTITUTIONAL SELF-STUDY WHICH IS NEEDED IN POLICY DECISIONS, PLANNING, MANAGEMENT AND EVALUATION. THE SPECIFIC AREAS OF INSTITUTIONAL RESEARCH INCLUDE--(1) GOALS, (2) STUDENT, (3) FACULTY, (4) CURRICULUM, (5) FACILITIES, (6) ADMINISTRATION, (7) FINANCE, AND (8) PUBLIC RELATIONS. THE FUNCTIONAL ASPECTS OF CONDUCTING RESEARCH ARE CONSIDERED BY FOCUSING ON FACTORS THAT INFLUENCE PLANS OF ORGANIZATION AND PLANS ACTUALLY IN EFFECT. FACTORS INVOLVED IN EFFECTIVE RESEARCH ARE ALSO PRESENTED. THE APPENDICES GIVE EXAMPLES OF INSTITUTIONAL PROBLEMS FOR POLICY DECISIONS, OF HOW SOME INSTITUTIONS ORGANIZE RESEARCH, AND OF CHANGES ATTRIBUTED TO INSTITUTIONAL RESEARCH. (HH)

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A. J. Brumbaugh

AMERICAN COUNCIL ON EDUCATION

**Research Designed To Improve
Institutions of Higher Learning**

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RESEARCH DESIGNED TO IMPROVE INSTITUTIONS OF HIGHER LEARNING

Prepared by A. J. BRUMBAUGH
FOR THE OFFICE OF STATISTICAL INFORMATION
AND RESEARCH OF THE AMERICAN COUNCIL ON
EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Foreword

ALMOST FROM ITS INITIAL ESTABLISHMENT IN 1956 UNDER A GRANT from the Carnegie Corporation, the Office of Statistical Information and Research (OSIR) has been interested in institutional research. At the Conference of Presidents, held in February 1957, it was evident that there was an urgent and realistic desire for information on methods and procedures for conducting studies designed to improve individual institutions, and reference was frequently made during the conference to the application of operations research techniques to problems of higher education.

In May 1957 several people, generally technically oriented, were called together by OSIR to consider problems in the broad area of institutional self-study. Not all of those in attendance would have identified themselves as "institutional research" people. In fact, at that time a conference of only those with titles indicating they were engaged in institutional research would have been attended by a very small number of people, indeed.

About a year later—in May 1958—the first "Report on Current Institutional Research" was distributed by OSIR. The initial mailing list was small. It has since doubled and redoubled, however, as interest and understanding became more widespread.

Pioneer bureaus of institutional research were established at the University of Minnesota and University of Illinois many years ago, but the development of new bureaus has been slow, for the work done sometimes does not lend itself to publication. There has been, however, an increasing recognition of the fact that institutional research, as well as interinstitutional research, might contribute to a better understanding, and possibly better utilization, of our institutions of higher education. At the same time, confusion exists as to just what it is and what it does.

Those actively engaged in institutional research are, naturally, proponents of its value. They are not entirely agreed, however, on its scope or functions. In order properly to evaluate the activity, OSIR sought someone broadly familiar with the many aspects of higher education who could survey and report on this field of endeavor. This report, by Dr. A. J. Brumbaugh, is the result.

The Council hopes and expects that this report will stimulate debate and facilitate evaluation from which will emerge a better understanding of the place of institutional research in our colleges and universities.

ARTHUR S. ADAMS, *President,*
American Council on Education

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1. The Need for Institutional Research

THESE ARE CRUCIAL DAYS FOR HIGHER EDUCATION. THEY ARE CRUCIAL because of great opportunities to provide leadership in a world of shrinking distance and mounting tensions: in a world in which new knowledge and new technology threaten to destroy all mankind. They are crucial days because at the time of its great opportunity higher education is confronted with serious problems and severe handicaps. College and university administrators are called upon to make difficult and far-reaching decisions—decisions that are made all the more difficult by a complex of factors that have never before occurred in the same pattern or in the same magnitude.

Colleges and universities must prepare for a tremendous increase in college enrollments in the decades just ahead. They must see that their programs and faculties keep pace with the rapidly expanding fields of knowledge. As new streams of knowledge flow from the laboratories, there must come from the classrooms the reinforcement of humanistic values and moral power that will direct these streams aright. Colleges must strengthen and expand their faculties at a time when the supply is running low—so low, in fact, that there is already a marked decline in the percentage of new college appointees who hold the doctor's degree.

Moreover, administrative functions have increased in number and complexity because colleges and universities today serve a society more extensively than did their earlier counterparts. This expansion of purposes and programs has multiplied managerial functions to the point where administration has become a specialized type of professional service. Not the least in the complex of factors affecting higher education is the rate at which the costs of higher education have risen. As enrollments increase and costs continue to rise, administrators of

public institutions will have to convince legislatures that greatly increased appropriations are needed, and those in private institutions will have to find new and larger sources of income. In both instances, more conclusive evidence will be required that there are maximal educational returns for each dollar invested.

Out of these conditions arise issues that challenge the wisdom of trustees, presidents, deans, and faculties; that baffle the newcomer in administration and test the mettle of the most experienced.

Higher education in its operations spends approximately three and a half billion dollars annually, it employs more than two hundred thousand highly qualified personnel, and it currently affects about three and a half million students.

The magnitude of these operations has led some efficiency experts to think of higher education as big business and to apply to it the principles of business management. It must be recognized, however, that educational institutions, whether publicly or privately supported, exist primarily to perform public services. They differ from business enterprises because their motive is not profit. Educational considerations must, therefore, take precedence over sheer management efficiency.

This difference between higher educational institutions and business enterprises in no sense relieves the colleges and universities of the responsibility for operating efficiently. But they must develop their own methods of evaluating their operations in terms of their goals and functions.

The key to effective administration is the ability of the president and those who work with him to ask the right questions and then find the right answers. But the right answers to the right questions, whether they are specific in relation to a given institution or whether they are more comprehensive, must take into account all the relevant, factual data—the kind of data that only institutional research can provide.

Institutional research, as discussed here, consists of studies and investigations focused on current problems and issues in institutions of higher education. It also consists of studies and investigations of problems and issues that are basic to long-range planning or that may ultimately have implications for institutional operations. The former is typically applied research; the latter is basic research in higher

education. This booklet gives special consideration to applied institutional research, but it is not intended to minimize the importance of basic research. It does not include research in specific disciplines that may have educational applications such as studies in the psychology of the learning process, although these studies may have great potential significance.

The importance of institutional research becomes even more apparent when one considers the several phases of administration in which research data are needed. To illustrate, reference is made to four areas, not necessarily mutually exclusive, in which the use of research findings is indispensable. These are: policy formulation, planning, administration, and evaluation.

Use of Research in Making Policy Decisions

The responsibilities for policy-making in a college or university are shared by trustees, administration, and faculty. The lines separating the three cannot be sharply drawn. Generally, however, trustees, who have basic responsibility for finances, make or approve policies pertaining to the purposes, characteristics, and the long-range plans of an institution. The administration and the faculty adopt and apply policies affecting the operation of the institution in accordance with general policies approved by the trustees.

Many other questions of policy on which trustees have the final word will occur to the reader.¹ Some will involve the addition or discontinuation of schools or programs, such as engineering, journalism, home economics, fine arts, pharmacy, or veterinary medicine; determination of changes in tuition rates, and a corresponding adjustment of student aid; the introduction or abandonment of work-study programs; the determination of the emphasis to be placed on contract research; the acceptance of federal aid for building construction or other purposes; and the nature and extent of fund-raising activities.

Policy questions pertaining to the operation of an institution, for which the central administration and the faculty are primarily responsible, will relate to such matters as:

1. *Efficient use of instructional space.*

¹ For several illustrations of specific cases see Appendix A, "Institutional Problems on Which Boards Must Make Policy Decisions."

2. *Curriculum organization and development:* Primary responsibility for the educational program usually is vested in the faculty, but the faculty and the administration must jointly agree upon the conditions under which new courses may be added or existing ones discontinued. Institutional research can provide relevant data to guide the faculty and administrators in arriving at wise decisions.

3. *Determination of teaching loads:* The mere identification of the interrelated variables serves to emphasize the difficulty of reaching fair decisions. For example, what weight shall be given to teaching several sections of the same course as against teaching different courses, each of which requires separate preparation? What special consideration shall be given to a course in which lengthy papers are required? How shall teaching and research be equated? How shall advising students, especially those at the graduate level, be taken into account? What weight shall be attached to supervising dissertations and independent study? Every college and university has some kind of policy, however haphazard and inconsistent it may be, governing teaching loads. But a sound and equitable policy can be formulated only on the basis of equitably weighing various factors. Some of the research techniques for getting the necessary facts, and administrative procedures for using them, remain to be developed. This is a field in which pioneering institutional research is badly needed.

It should be convincingly apparent from these few illustrations that institutional research is basic to policy formation, whether the policies pertain to the over-all purposes and functions of the institution or to its effective operation.

Use of Institutional Research in Planning

Planning is a comprehensive term, including everything from setting dates and preparing agenda for meetings to designing in bold strokes the institution of the future. Sound long-range planning requires data of many kinds. It calls for enrollment projections, projections of social and economic change, determination of the kinds of educational programs that will be needed, and determination of physical facilities required for instruction, for housing and boarding students, for health and recreation, for research and experimentation, and for administration. It calls for an estimate of additional faculty requirements and

of the probability that competent faculty members may be recruited. It involves estimation of costs of these developments and of the financial resources for meeting them. Long-range planning is hazardous because of the uncertainties of the future, but the alternative is even more hazardous. Long-range plans must be made, but they must also be reviewed from time to time and revised when new data do not substantiate the original predictions. The necessity for adequate, continuous research data is obvious to those responsible for making such plans.

Use of Research in Institutional Management

It is the function of management to facilitate the achievement of the basic purposes for which an institution exists—the provision of high-quality instruction, research, and service.

At the risk of emphasizing the obvious, a few specific questions bearing on institutional achievement are presented. How effective are admissions policies and procedures in attracting the desired type of student? What changes have occurred in faculty qualifications and conditions of service over a period of years? What is the relationship between space utilization and space needs? How is the income dollar spent? What is the relationship between income from various sources and the purposes for which it is used? To what extent do subsidies for research pay the actual costs? *Commonplace as these questions may seem, many college administrators do not have adequate answers supported by research findings. It is difficult to understand how administrators and faculties can be complacent about decisions that are made without the benefit of institutional research.*

The Role of Institutional Research in Evaluation

The quality of instruction, research, and services of a college or university is of prime importance. The quality of a program is measured by the quality of its product, but judgments of the latter are difficult to make and the criteria on which such judgments are commonly based are quite inadequate. The performance of students on standardized examinations provides one kind of evidence, but even the best of these examinations are not always geared to the

educational purposes of a particular institution. The performance of graduates in advanced study constitutes another type of evidence. This, too, is limited. The achievements of alumni are often cited as an index of the quality of their collegiate education.

Faculty members sometimes undertake a cooperative appraisal of their activities, but more often excellence is simply presumed. To supplement and extend these partial measures and indices, institutional research focused on more adequate measures of quality is urgently needed.

A study of the excellence of an institution will inevitably lead to identifying and testing the soundness of the assumptions on which its program rests. Commonly, these assumptions must be inferred from institutional practices. To compile a complete list would constitute a major study in itself. For purposes of illustration a few assumptions implied by institutional practices or published in institutional announcements are cited.

1. Broad general education requirements equally applicable to all students constitute the most satisfactory basis for achieving institutional objectives.
2. A liberal education can be achieved best by giving students wide contact with specialized courses rather than by providing integrated courses in broad subject-matter fields.
3. The quality of instruction depends directly upon student-faculty ratios.
4. Science laboratory experience is an indispensable element of general education for the nonscience major.
5. The quality of instruction tends to decrease as the number of classroom hours taught per week increases.
6. Students should spend two hours in preparation for each hour of classroom instruction.
7. With the help of deans, personnel officers, and faculty advisers, the student is competent to determine his own educational destiny and to decide for himself how he can best use his years in college.

Such assumptions must be tested with courage and imagination. Institutions need really imaginative reports of faculty committees, proposing an experimental program in general education, or in new

methods of teaching, or in fresh ways of organizing subject matter. Institutional research can aid administrators and faculties to view present practices critically and to regard new proposals sympathetically.

The major functions, then, in which institutional research plays an important part are *policy making, planning, management, and evaluation.*

2. Areas of Institutional Research

THE FIRST STEP IN MAKING LONG-RANGE RESEARCH PLANS IS TO develop a structural outline into which specific projects may be fitted. A college or university may not wish to move out on all research fronts at one time, but before starting on any, it will be wise to take an overview of the total field and then decide on which fronts advances shall be made first. This approach will be more economical and more productive than will scattered, piecemeal, and uncoordinated studies. For purposes here a selection has been made of eight general categories into which institutional research may be organized—goals, students, faculty, curriculum, facilities, administration, finance, and public relations. It should not be expected that each institutional research project will fit neatly into one or the other of these categories. Taken together, however, they constitute a fairly adequate basis on which an institution may project its research needs.

Goals

The diversity among our colleges and universities is often referred to as an element of strength in higher education. This diversity, whatever its merits, imposes on each institution the responsibility of defining its particular role. It must formulate its own goals, objectives, or purposes, because an institution's goals govern nearly every phase of its activities—faculty, program, students, operations, financial support, and public relations.

It is incumbent on the administration and faculty constantly to relate their activities to the goals to which the institution is dedicated. It should not be assumed, however, that goals are static. *Special*

studies must be made periodically to determine whether institutional goals are consistent with current social and economic conditions affecting the institution; whether current programs and practices are consonant with the goals; how well they are understood and adhered to by faculty and students; and whether the plans for the institution's future development are in accord with its goals.

Recurring in numerous published statements of goals of general education, for example, are the concepts of communication, thinking, ethical behavior, appreciation of beauty, power of creative self-expression, physical and mental health habits, competence to do productive work, knowledge of man's natural and social environment, familiarity with the peoples of the world and with their cultures. Whether such statements relate to the outcomes of general or of specialized and professional education, they need to be examined periodically to be certain whether they embody the basic needs of students and of the society in which they as graduates will live and work.

Students

The student is of primary concern to every college and university, not only because he is the focus of the educational program, but also because the role he plays in society after he leaves college helps to create the image that the public has of the institution. The more that is known about students—their characteristics, their experiences, their successes and failures, both in and after college—the better can an institution formulate and evaluate its policies, programs, and procedures.

The nature of a student body is determined by a combination of many characteristics—age, sex, geographical origin, family background, rank in class, performance on standardized achievement or aptitude tests, and also other data (less frequently available) derived from personality inventories and from intensive studies of individual students. These data provide a basis for understanding the intellectual and personal characteristics of the students. Is the intellectual ability of the student body narrow in range, or is its intellectual competence widely spread? Is the group culturally homogeneous, or are there in it various ethnic and cultural subgroups? What

personality traits revealed through inventories and interviews are positively or negatively related to success in college? What types of educational experience are most valuable for particular groups of students?

Studies of student characteristics that are conducted over a period of years will also help to identify changes that occur within the student body—changes that may have important implications for the organization of the educational program and for the methods of teaching. From the findings of these studies an institution can judge whether its recruitment procedures and admissions policies are really effective and whether its program and methods of teaching are consonant with student abilities and needs.

An institution needs to know not only what kinds of students are admitted, but also how well they get along after they enter. Most important is an understanding of all the conditions that contribute to student success or failure. Many institutions should be greatly concerned about the large numbers of students who enter but do not graduate. On the basis of the distribution of their enrollments between the upper and lower levels, some four-year colleges are, in fact, junior colleges. What are the reasons for the great loss of freshmen and sophomores? What is the impact of this loss of students on the students themselves, on the faculty, on the constituency? Is there a relationship between the loss of students and the adequacy of services provided to meet student needs? Do most students have clearly defined educational and vocational goals? Are the educational offerings of the institution compatible with these goals? If student goals are vague and ill-defined, are adequate testing and counseling services available? Are the health services, financial aids, personal counsel, and other services adequate to meet the student needs? All these questions have a direct bearing on an understanding of student success or attrition.

Equally important are studies relating to the rate of progress and the achievement of students. The rate of a student's progress will depend upon the flexibility of the educational program. If it is assumed that time-serving is important, all students will be expected to progress at approximately the same rate and to remain in the institution for the usual four-year period. The rate of progress will

be governed by this philosophy. If it is assumed, on the other hand, that adjustments will be made to take account of the previous preparation of students; that provisions will be made for students to progress at variable rates consistent with their ability; and that mere time spent in the institution is not in itself the major determinant toward satisfactory achievement of the institution's objectives, the educational program will be adapted to individual differences and appropriate measures of achievement will be employed. These become elements to be taken into account in studying the rate of progress and the achievement of students.

Obviously, some institutional studies of students tie in closely with research projects on the curriculum, faculty, administration, and finance. This relationship merely serves to re-emphasize the fact that research projects tend to form clusters that defy strict classification by categories.

Faculty

The term "faculty" is used here to refer to both personnel and functions—who the faculty members are and what they do. The quality of an institution seldom rises above the quality of its faculty. Of obvious necessity then is the identification of the marks of successful college teachers in the particular institutional environment. Are there special qualities desirable for teachers in small colleges, universities with graduate schools, or specific professional schools? Answers to these questions vitally affect the recruitment, preparation, and placement of college teachers in the individual institution. Identifying these qualities, therefore, becomes a major project in a program of institutional research.

Nearly every faculty roster contains data on the age, preparation, experience, marital status, dependents, special interests, contribution to scholarship, and length of service of its members as well as honors or other public recognition accorded them. These data can be analyzed and synthesized in many ways to give a general picture of the faculty. They may also be studied to discover what relationships exist between these characteristics and success in teaching, research, counseling, or other functions.

But beyond these obvious traits are more subtle qualities that call

for continuing research. Briefly stated some of them are: (a) *Motivation*: What attracts an individual into teaching initially? What satisfactions does he derive from teaching or a combination of teaching and research in the institution he serves? What dissatisfactions impair his effectiveness? (b) *Conscientiousness*: Do academic responsibilities take precedence over nonacademic and non-institutional interests? Where do professional responsibilities rank in the faculty member's value pattern? (c) *Productivity*: Do administrators and faculty members agree on what constitutes productivity? What are the indices of productivity? What is the magnitude and quality of faculty productivity? (d) *Teaching effectiveness*: Ordinary observation, as well as the testimony of students and of teachers, indicates that some teachers are gifted lecturers and that the size of the group to which they lecture does not affect their competence; that others are much more at ease and much more effective in small-group discussions; and that still others are at their best in directing seminars or independent studies. Thus, it would appear to be wasteful of talent and prejudicial to quality to make teaching assignments without regard for individual competence. Much research is needed, however, to verify the assumption that these differences do exist and, if so, to suggest how they can be taken into account.

Better use of faculty time and talent also requires the study of new methods of teaching, including interdisciplinary, cooperative teaching and research and the use of mechanical aids in specific courses offered by the institution. For reasons which should be made the subject of research, faculty members are often reluctant to initiate experiments in new methods of teaching. They may resist the idea of using television as an aid, or of organizing large lecture sections supplemented by small-group discussions, or of according superior students the freedom of independent study.

Falling within the compass of this general area of institutional research are the conditions of faculty service and their impact on faculty morale. Some colleges and universities have problems of faculty turnover that parallel the problems of student attrition. Both the power to attract and the power to hold faculty members depend in a large measure on the spirit of the faculty. The conditions under which they live and work, salaries, teaching loads, sab-

batical leaves, retirement systems, group insurance, opportunities to attend professional meetings, provisions for publication of research reports, housing, health insurance and health services, all these are of great importance in maintaining high morale. Money will not solve all the problems of faculty morale though it will help. Much depends on the relationships between the faculty and administrators, the channels of communication, the provisions for faculty participation in planning and evaluating programs.

Faculty characteristics, needs, functions, conditions of service, morale, motivation, outlook, imagination, these are only a few of the subjects that are appropriate for institutional research.

Curriculum

In its broadest interpretation the curriculum comprehends the body of experiences designed to aid students in achieving the educational objectives of the institution. Any study of the curriculum should therefore begin with educational objectives, how they were arrived at, what special emphases they reflect, and what identifiable influences account for these emphases.

Studies of the relationship of educational programs to objectives will involve an analysis not only of courses and of classroom experiences, but of students' total campus experience. Do experiences outside the classroom contribute to the realization of educational objectives, or do they actually have a negative effect? Our assumptions either for or against the value of student activities need to be verified. Likewise, we need to confirm our assumptions about the educational value derived from classroom instruction.

Much is being said about the waste that results from unnecessary proliferation and duplication of courses. Analyses that have been made of programs, either in institutional studies or on a broader basis, provide evidence in some instances to support the charges of educational profligacy; in other instances they show the need for curriculum enrichment. Getting the facts is not very difficult, but determining which existing courses are actually unnecessary or what new ones should be added is difficult.

Already mentioned in determining educational objectives and related programs are the needs of students. In this respect, studies

of students and curricula complement each other. Diversity of characteristics of student bodies makes for diversity among institutions. Each college or university must therefore examine its program in the light of the needs of its own students. Are the needs of superior students adequately met, and are there special courses or programs provided for students of limited ability or poor preparation?

Both faculty and administrators must be aware of the trend in curriculum change in an institution. What courses or programs have been added or discontinued over a period of years? What identifiable effects have the changes had? Has important new knowledge been incorporated in the curriculum? Is there a regularly established procedure for continued curriculum revision? What is the evidence of its effectiveness?

These suggested studies simply illustrate the possibilities and would be just as relevant, with appropriate adaptations, to graduate and professional programs as they are to undergraduate curricula.

Facilities

The physical plant is often the president's pride—and justly so. It is visible and impressive evidence of his achievement as an administrator. His pride is frequently shared by citizens, members of legislative committees, and by benefactors whose names may be prominently associated with certain buildings. On a conducted tour of the campus, the president will give accurate information about the purposes for which new buildings were constructed; how many students and faculty members they will accommodate; how much they cost; and what economies were effected in their construction. Seldom, however, is evidence given to show that the building fulfills a more urgent need than might have been served had the same funds been used in other ways. The quick answer usually is that these funds could not have been had for other purposes.

The primary purpose of facilities, as the word implies, is to promote the adequate operation of an educational activity. To serve this purpose the *facilities should neither control nor restrict educational operations*. The relationship between facilities and the educational purposes they are designed to serve is therefore a subject for

special study. Is there enough variation in classroom size to allow flexibility in the organization of instruction, or is class size controlled by the physical facilities? Are faculty offices adequate in number and size to allow privacy for student conferences, to allow freedom from interruptions for purposes of study and writing? Are materials and aids to instruction adequate and readily available as needed? Negative answers to any of these questions imply that the educational programs are restricted rather than aided by the facilities.

Judging from the reports made of recent institutional studies, more attention has been given to space utilization than to any other phase of the physical plant. Perhaps this is as it should be. Inefficient use of space may divert funds from other important uses such as the increase of faculty salaries or the provision of scholarships and fellowships. Not only may this be true of space utilization, but also of new construction. Educational costs are rising more rapidly than funds are becoming available to support them. Yet on some campuses large building operations are under way even though increases in faculty salaries are negligible—an indication of an imbalance in the use of available funds. Both the efficient use of existing space and the establishment of priorities for new construction require data derived from carefully organized and continuing institutional studies.

There is also need to explore the relationship between where a student lives—in a residence hall, fraternity house, private room, apartment, or his own home—and academic achievement. Is there evidence that living arrangements have any effect on personality adjustment or development? For instance, what account should be taken of personality traits in assigning rooms and roommates? What provisions should be made for conference rooms, libraries, music listening rooms, television and recreation rooms, and facilities for other activities that serve the purposes of the educational program?

Enormous amounts of money have been spent for student unions and other types of centers for student activities. Perhaps institutional research has sometimes provided the basic data for planning these centers, but only a few such studies have been reported. Nor have studies been reported that present the basic data for planning centers for extension and continuation education. Certainly some

fact-gathering must have preceded the establishment of the impressive new centers. It is equally certain that more studies in this area are needed.

A lesson that many colleges and universities are learning by painful experience is that some historic types of architecture are neither functional nor adaptable. Architects are becoming increasingly aware of the demand for buildings that not only lend themselves to maximum utilization but that are also readily adaptable to changing educational needs. The institutions themselves can both initiate and give strong support to studies focused on architectural designs that embody harmony and beauty, yet make for maximum efficiency and adaptability.

The library is of such importance that it merits special emphasis in any program of institutional self-study. How extensively and for what purposes is it used by faculty and students? How well is the selection of new accessions coordinated with instruction and research programs? How well does it serve research needs? What motivations and inhibitions affect its use? The advantages and disadvantages of decentralized book selections in departmental and school or college libraries, as reflected in use, and in cost of construction and operation, constitute a problem for special study.

Administration

The administrative officers of a college or university are directly concerned with all institutional research insofar as the results will help to build quality programs. Administration, as a special subject of institutional research, involves an examination of the organization and operation of the institution, for the purpose of appraising its effectiveness and deriving recommendations for its improvement.

Some significant studies in this area have been initiated by presidents, vice-presidents, and deans. Sometimes, also, they are suggested by agencies outside of the institution that have a direct interest in it—a church board or the legislature. Once it is agreed that an administrative study should be made, the purposes and scope of the study must be defined, and it must be decided who shall make the study. A self-examination by the administration may lack objectivity, and its findings are not always accepted with

confidence; a study by a faculty member or faculty committee is also likely to reflect certain biases. The alternatives appear to be to have the studies made by the director of institutional research, or to employ professional consultants or management experts.

Consulting management firms are sometimes criticized because they tend to cast the organization and operation of an institution in a mold of business management efficiency, and thereby subordinate educational considerations to those of management; because sometimes they undertake surveys and special studies that fall outside of their sphere of competence; and because their services are very costly. Yet, some administrators give eloquent testimony to the benefits obtained from the services of management firms, saying that the savings effected were many times greater than the costs of the services.

Several projects for administrative research can be listed:

A study of the controlling philosophy of the administration is one. Only occasionally is a clear and concise statement of the administration's philosophy available. More often it must be inferred from administrative practices. Of special interest to the administrator should be the faculty's interpretation of his philosophy, since that interpretation will depend largely on how the faculty construes his administrative practices.

Organization is another phase of administration that calls for special study. Sometimes separate colleges or schools in a university have, or assume, such a high degree of autonomy that there is little unified direction. Conversely, on some campuses, authority is highly centralized, with many lines of authority radiating directly from the office of the president. The president may be overburdened with details and be engaged in a constant endeavor to keep the lines from becoming confused and tangled. Reports on studies of administration show that in some instances fifty or more different officers report directly to a chief executive. Any study of organization must determine how clearly functions are defined, in whom authority for the performance of the various functions is vested, how administrative activities are coordinated, and how various interests are represented.

Organization of graduate programs and of research is another question that is often troublesome, particularly in the larger univer-

sities. Shall the control of graduate programs be decentralized, each school or college having a large degree of autonomy in determining offerings, degree requirements, and qualifications of instructional staff, or shall there be a single, unified, coordinated graduate school in which various colleges and schools participate on terms mutually agreed upon? Likewise, in the field of research, to what extent shall the faculty's research activities be administered and controlled by individual departments or schools and colleges rather than coordinated through a central officer or agency? If centralized, shall control be located in the office of the dean of the graduate school or in an independent office? These questions can be, in fact generally must be, resolved by administrative-faculty judgments. But objective studies, both institutional and interinstitutional in this case, will aid in clarifying the advantages and disadvantages of various organizational plans.

Closely related to the allocation of functions and authority is the competence of the administrative personnel to perform assigned functions. This is a particularly difficult type of study to make because of the sensitivities involved. The awareness on the part of an individual that his qualifications are under scrutiny tends to constitute a threat. Moreover, higher education has not developed techniques for appraisal of personnel comparable to those used in business and industry, nor has it been able to borrow and adapt those techniques. Nevertheless, the need for personnel appraisal is such that the problem must be attacked directly and forthrightly.

The rules and regulations governing personnel also need to be studied. Which are properly made by the faculty, which by the students, and which by the administration? In forming regulations, what provisions are made for participation by those to whom they apply? What are the channels through which reactions to rules and regulations may be communicated? What satisfactions and dissatisfactions exist regarding current regulations? What trends are reflected in revisions that have been made over the years? What is the impact of rules and regulations, and the processes for making and enforcing them, on the value patterns of students? In other words, what contributions are made to the achievement of educational objectives? Such studies should reveal the concept of the

administration regarding its function as a governing agency and also reveal the operational effects of this concept.

Basic to studies in all areas, but especially in administration, are records and other sources of information. A high priority might be given to a study of records and reports for the purpose of determining their adequacy, their completeness, as well as the form in which they are kept. In a large institution this will be a major project; in a small one it will be relatively simple.

Finance

The management of the financial affairs of an institution is a phase of administration. Studies in the area of administration will therefore include the management of finances. But some questions in this area do not pertain directly to how financial affairs are handled. For purposes of this discussion, a distinction is made, therefore, between the administration of finances and the gathering of financial data for administrative use.

Studies designed to provide financial data related either to an institution's present operation or its future development may be grouped roughly into four categories: (1) those pertaining to the sources from which funds come, (2) those having to do with how the funds are used, (3) those related to the amount of additional funds that will be needed, and (4) those concerned with the sources from which future funds may be derived.

In some respects, studies of sources of income will differ markedly in private institutions from those in institutions that are publicly supported. In the case of the private college or university the chief concern will be with the support derived from students, endowment, a church board, a special constituency, individual philanthropy, foundations, business and industry, the alumni, government, and others. Of special importance is the establishment of trends that indicate which sources are reasonably stable, which are fading out, and which are increasing. The data should also show the purposes for which the funds are available, whether for unrestricted support of operating costs or restricted to designated uses. The facts provided will lead to a determination of the relationship between the financial needs of the institution and the purposes for which funds become avail-

able. Also, they will show whether the restrictions placed on the use of funds tend to distort or control the educational program. Such analyses should also help to identify factors that influence institutional support—the socioeconomic status of parents of students, excellence of instructional programs, close affiliation with a religious group, contributions of business and industry, the production of outstanding research.

Studies of the sources of funds available to publicly supported institutions will be focused most sharply on municipal, federal, and state appropriations. These studies will establish trends in state and federal support of higher education, the proportions of state appropriations allocated to state colleges and universities, the amount of federal funds received for designated purposes, and the impact of such funds on the instructional and research programs. The studies will also take into account funds received from nongovernmental sources—business and industry, alumni, private foundations and philanthropists, student fees, and others. Data derived from these analyses should help to disclose the philosophy guiding the legislature in its support of higher education; whether it tends to place a growing portion of the costs on students; whether it looks to private sources for larger support of its institutions; or whether it believes that the benefits to society justify providing most of the costs from public funds.

Numerous other sources of support of both public and private institutions will appear in the course of planning and conducting studies of the types suggested.

A second major concern is how an institution uses the funds at its command. Institutional studies related to this question involve budget and unit-cost analyses. The budget presents a plan covering institutional income and expenditure, while studies of expenditure per unit of service show how income has actually been used. Making budget analyses should be a normal administrative procedure. Such analyses should show the relationship between items budgeted and institutional purposes as well as changes from year to year and trends over a period of years. The adequacy of both budget analyses and unit-cost studies depends first of all on the use of an acceptable system of classification. In this respect one can

hardly hope to improve on the collaborative effort of the National Committee on Standard Reports for Institutions of Higher Education.¹ Other excellent patterns of cost analysis have also been provided in authoritative studies in the field of educational finance.

A third phase of finance studies, involving the projection of financial needs, is complicated by several factors such as policies governing the expansion of enrollment, research, and services; the anticipated enrollment under these policies; projected faculty additions; economic trends—inflationary or the reverse—and their effects; the adequacy or obsolescence of present facilities; and the time schedule for achieving various developmental goals. The very complexity of these factors emphasizes the importance of carefully organizing the projected studies.

The fourth type of financial study relates to future resources. To make reliable studies in this area is even more difficult than it is to project future needs. It involves the consideration of the projected economic development of the state and of the nation; per capita income; the disposition of the legislature and of private interests toward supporting higher education; the possibilities of federal aid and the attitude of trustees and administrators toward accepting it; and the development of new sources of revenue. Despite the uncertainties of the economic outlook, studies of how future financial needs can be met are imperative. The conclusions of such studies must of necessity be tentative and should be revised as continuing studies provide new data.

Public Relations

Public relations is an emerging field in higher education. In some institutions the director of public relations is primarily concerned with press releases and arrangements for various kinds of public events; in others he has a broad range of responsibilities including the cultivation of public support for a long-range development program. Important among the situations in which public relations are important are relations with high schools, relations with the sev-

¹ *Computation of Unit Costs* (Washington: American Council on Education, 1955). This is a reprint for use with *College and University Business Administration*, Vol. II, published by the Council in 1955.

eral media of public information, relations with educational associations, and relations with the citizens.

An appraisal of relations with high schools will involve the image that high school principals, teachers, and students have of the college, how the transition from high school to college may be made easier, the effect of the college requirements on the high school curriculum, and the kinds of services that the college might render to the high schools.

Relations with the media of public information—the press, radio, and television—often present special problems. Items reported to the public frequently are not those that the administration or faculty consider important, sometimes they are downright embarrassing because of the elements of sensationalism that apparently make them newsworthy. *Badly needed are studies aimed at developing criteria for the guidance of institutions and the public media in the formulation of programs of public information.*

Relations of an institution to the residents of the community are of an almost endless variety, ranging from public entertainment in sports and provision of various forms of cultural activities in the arts to the extension of services in science or in public health to the community and the establishment of organized educational programs on off-campus centers. It is distressing at times to observe the helter-skelter manner in which institutions compete with one another in some off-campus activities. Certainly studies of the needs and interests of citizens and of the resources for meeting them should be the foundation of service programs fostered or operated by an institution.

If the cultivation of financial support either from the state or from private sources is included, the public relations program is at the very center of an institution's existence. Attitudes of legislators and benefactors are determining factors in this relationship. Studies of attitudes, how they are formed, how they are changed, and of the motivations that account for generosity or penuriousness would seem to be basic to the public relations involved in attracting gifts and appropriations.

Public relations officers are in a strategic position to identify problems that call for research. Less time given to spectacular

promotion and more time given to serious consideration of what some of these problems are should pay long-run dividends to the institutions they serve.

The eight areas of institutional research which have been briefly sketched are only illustrative. The research pie can be cut in a variety of ways. Pieces can be made large or small. In the preparation of this statement the pieces have been kept few and have therefore been fairly large in order to provide a broad view. It is hoped this outline will result in a comprehensive and unified approach to institutional research.

3. The Conduct of Institutional Research

WHEN IT COMES TO GETTING INSTITUTIONAL RESEARCH DONE, many institutions appear to be stopped on dead center. How to get research under way, therefore, becomes a very important question. The major points of concern considered here will be (a) factors that influence plans of organization and (b) some plans actually in effect. Specific techniques of research are not included.

Factors That Influence Organizational Plans

Each college or university must develop its own plan for conducting institutional research. There are no established models. The development of any plan will be affected, however, by a number of conditions. Among them are: attitudes on the campus; the origin of the specific research projects; the nature, scope, and availability of information needed; personnel and equipment required and available; financial support needed and available.

Attitudes toward institutional research and the acceptance of its findings depend in no small degree on the rapport that exists among the faculty or between the faculty and the administration. The psychological identification of the faculty with the central administration is important and will depend to some degree on the extent to which faculty members participate in decision-making. One of the chief contributory factors to this identification is ease of communication. A hierarchy of officers between the faculty and the president may either constitute a barrier to communication or may facilitate it. Faculty attitudes will depend also on the balance that

the faculty members maintain between their specialized teaching and research functions and common institutional interests.

The sociological characteristics of the institution may affect attitudes toward institutional research. As a social organization the campus community may be essentially a unified, coherent group, or it may be made up of a variety of subgroups, some being satellites of the central administration, some representing common professional or intellectual interests, some being recreational or social in nature, and some merely dissident factions. That such groups exist is less important than is the harmony or hostility that exists among them. There may be "in" groups and "out" groups whose attitudes have a vital effect on their participation in and acceptance of institutional research projects. The implication of this cursory analysis is that institutional research should really begin with a study of the psychological-sociological factors. Many projects are too urgent, however, to await such an analysis. Nevertheless, these psychological and sociological factors must be identified and taken into account in planning, launching, and conducting institutional research.

The second factor in deciding how and by whom institutional research shall be conducted is by whom it is initiated. Certain uses that may be made of research findings in policy-making, planning, administration, and evaluation have already been presented. For these purposes research projects may be initiated within the institution by the central administration, by a faculty member or faculty committee, by staff members, or by student organizations or committees. Not infrequently, however, the incentive may come from sources outside the institution—a church board of higher education, a state legislative committee, an accrediting agency, a commission engaged in a special study, or a regional education board.

The nature of an institutional research project is another factor in determining how it shall be conducted. Involved will be such questions as: Is this a one-time study, or will it be recurring and continuing? Is it limited to a single phase or a narrow segment of the institution, or is it comprehensive? Are the data readily available and easily classified and interpreted, or will specialized techniques of data-gathering, such as the depth interview, be required?

Some research projects require personnel with highly specialized

knowledge and skills. The research related to the projection of enrollments or of economic trends calls for the services of a competent demographer or economist. Studies of institutional finance must be made by one who combines knowledge of financial management with a command of appropriate research techniques. On the other hand, to make studies that cut across several fields will require a generalist who will supplement his own competences with the services of specialists as they are needed. The crucial question to be decided when a particular research project is under consideration is: Does the institution have personnel on the administrative staff or the faculty qualified to undertake the project and can their services be made available as needed? If not, can needed personnel be secured from outside the institution?

If voluminous data must be processed, appropriate equipment should be available. Energy and time are often wasted in manual tabulation and analysis of data when more accurate results could be achieved speedily and economically by the use of modern equipment. Moreover, such facilities can help attract competent personnel to a research project.

The necessity of financial resources for institutional research need not be elaborated. How the research is organized may depend, however, on whether there is a budget for such research, whether funds must be allocated from the president's contingency funds, or whether they may actually be distributed among the budgets of the several schools and colleges or even departments.

These factors, along with others that may be peculiar to a local campus, are important in deciding how, and by whom, institutional research shall be organized. Without attempting to determine how each of these factors may have influenced the development of plans and procedures, an examination of those actually in effect in a few institutions will give a good idea of the wide variation that exists.

How Some Colleges and Universities Carry on Institutional Research

The attention accorded by colleges and universities to institutional research ranges from no provision or no plans to a highly centralized bureau of institutional research with a director and staff.

Two recent reports, *Institutional Research in the West*¹ and *Institutional Research Concerning Land Grant Institutions and State Universities*,² include information on the organization of institutional research in approximately two hundred institutions. The major conclusions on which there appears to be general agreement are:³

- There is a trend toward the centralization of institutional research functions.
- This centralization is of quite recent development in most institutions.
- The centralization of research functions is most characteristic of institutions of medium size. Large institutions more often have some type of decentralized organization, while small institutions generally lack any formal organization.
- Where institutional research is centralized the responsibility for directing, conducting, or coordinating the research is most often assigned to a full-time or part-time institutional research officer although in some institutions an administrative-faculty committee serves as the planning and coordinating agent.
- Where there is a decentralized organization, institutional research is generally done by various persons—deans, administrative assistants, registrars, business officers, faculty members, or special committees.
- A significant number of institutions that have centralized institutional research functions also have institution-wide advisory committees on institutional research.

There can be little doubt about the advantages of centralizing in an officer or a committee the responsibility for planning, coordinating, directing, and reviewing institutional research. The trend in this direction indicates a growing acceptance of this point of view.

¹ Hall T. Sprague, *Institutional Research in the West* (Boulder, Colo.: Western Interstate Commission for Higher Education, 1959).

² W. Hugh Stickler, *Institutional Research Concerning Land Grant Institutions and State Universities* (Tallahassee: Office of Institutional Research and Service, Florida State University, 1959).

³ For a more detailed statement on plans of organization, see Appendix B.

On the other hand, a director of institutional research must guard against the separation of his functions from the main stream of intellectual activity on the campus: he must involve faculty members and administrative officers jointly in planning, conducting, and interpreting research projects.

4. The Effects of Institutional Research

IN PREVIOUS SECTIONS, CONSIDERATION HAS BEEN GIVEN TO THE functions of institutional research, the areas of research, and plans of organization for conducting research. In other words, we have considered the why, the what, and the how of institutional research. There still remain the questions: What changes in policies and practices result from institutional research? What has been the impact of institutional research on higher education? Partial answers may be derived from reports on the effects of institutional research today. "Partial" must be emphasized because many changes that have undoubtedly resulted from institutional research have not been reported.

The Impact of Institutional Research

In an attempt to discover the impact of current institutional research, more than one hundred leading educators, most of whom were either responsible for directing institutional research, or for using the results, were asked "What significant change has been effected in your institution or in an institution of which you have firsthand knowledge, as a result of institutional research?" It was recognized, of course, that not all institutional research is designed to bring about immediate changes in educational practice (some of it may simply support existing practices; some of it may be basic in nature and not related to immediate problems) but the weight of evidence is that most of it is pointed in the direction of change.¹

A variety of effects in addition to those noted in some detail in

¹ A number of specific examples are given in Appendix C.

Appendix C was reported by respondents. Expressed in a few concise phrases, the most important items reported were as follows:

- Studies related to students resulted in a modification of admission requirements, improvements in student counseling, improvement of freshman orientation, and the raising of academic standards.
- Studies related to faculty led to improved conditions of faculty service such as the introduction of sabbatical leaves, better salaries, better retirement provisions, the addition of insurance, and adjustment of teaching loads.
- Administrative studies resulted in a marked reorganization of the administration; improvements in budgeting procedures; improved control of class size, teaching loads, faculty promotion practices, and instructional costs; and improved quality of programs. At the same time significant savings were effected.
- Curriculum studies resulted in remedial courses being dropped or changed, honors programs being strengthened, costly courses being identified and eliminated, modern language requirements being revised, and some two-year curricula being discontinued.
- Preliminary studies of plant and facilities resulted in legislative appropriations for comprehensive planning studies as a consequence of which building plans were markedly modified and class schedules were changed.
- In the area of finance, tuition adjustments were made on the basis of findings in a study of the financial condition of students and their parents and the cost to students; modifications were made in the allocation of funds for various functions in the institution, and budgeting procedures were improved.

Conditions That Promote or Impede Change

A comprehensive study of how changes are effected in colleges and universities is needed to identify the conditions that promote or impede change. Several studies currently under way, but as yet incomplete, promise to throw some light on this question. It is possible, however, from personal observation and from reports of others to suggest a few of these conditions.

First, the size and complexity of the institution and the extent of the proposed changes certainly are factors. The larger the institution and the more complex its organization, the larger the number of special interests that have to be reckoned with. In a college of the single unitary type, the effect of any significant change is total. In a complex institution, made up of a number of units each having a certain degree of autonomy, the difficulty of making changes is compounded. It is probably an exaggeration to say that it would be ten times as difficult to bring about a change affecting ten such units as it would be to make a similar change in a unitary type of college, but the problem would be much greater. If, however, only a single college or school in a complex type of institution is involved, changes may be made quite as easily as in an independent college.

A good illustration of how magnitude of change affects acceptance would be the establishment of a two-year program of basic or general education. In a liberal arts college, such a basic program, if required of all students who enter advanced work, would affect only departmental majors, but the adoption of a similar program in a university would affect not only the departmental majors in the college of arts and sciences but also all those in professional schools that offer undergraduate curricula. The adoption of the program by concurrence of all the units affected, rather than by administrative fiat, would be difficult. But it has been done. Since both the nature of the change and the size of the institution are determining factors, techniques for effecting change appropriate to each type of institution must be developed.

Second, both the nature of the problems and the personality and attitude of the person responsible for institutional research are important considerations. There is still considerable misgiving on the part of some faculty members and administrators about research that involves human behavior and human institutions. Because of this attitude the person or committee responsible for planning and conducting institutional research must be committed to cultivating the full understanding and cooperation of the faculty in the development of its research program.

A third combination of factors is strength of leadership and locus of power. These two go hand in hand. Speaking on the "univer-

sity presidency," President Emeritus Dodds of Princeton made several statements that are relevant here. Even though they are taken out of context, they reflect fairly accurately his point of view.

A faculty is by definition a society of intellectuals and intellectuals resist organization. Indeed, universities do their best under conditions that would be near anarchy in business. Yet, there must be organization and this involves rules and methodological procedures even under the most democratic systems. And this in turn calls for some form of administrative hierarchy together with a substantial feeling of loyalty to the institution and the group. But the organization man on the faculty is not what makes a university great. Its greatness flows from the creative individual work of individuals as individuals who value self-expression and reward non-conformity. A university thrives best in an atmosphere of controversy. For it is through diversity and clash of viewpoint that learning is advanced. In this respect, the job of a president differs from that of a business executive because his leadership is expressed in his capacity to secure consent without the same power to issue directives that the latter enjoys. . . .

Academic freedom has become more than freedom of opinion buttressed by tenure. It now includes a high degree of faculty participation in decision-making, in an environment in which a certain element of hostility on the part of the faculty toward the administration still survives. Faculties are commonly making decisions (perhaps under the cloak of "advice"), of a sort which in business are made by top management or even by boards of directors. Moreover, our faculties are, of all the professions, the most resistant to change and in a fine strategic position to exercise that resistance. . . .

I suggest that the time has come for faculty leadership to worry less about infringements of their freedom and safeguards to protect it, and to turn their attention more to how they can more effectively perform their self-governing roles. In so doing, many will have to reconsider their posture toward the university administration. In America the attitude of natural hostility has its clear historical roots in examples of flagrant abuse of power by trustees and presidents a generation or more ago. But the battle on this issue has been won in most if not all of our leading institutions, and the irresistible trend is in favor of academic freedom in the others to the degree that trustees are sometimes becoming rubber stamps and presidents merely transmitting agents for faculties and deans in educational matters.*

These conclusions, derived from Dr. Dodds' study of the university presidency, delineate clearly the problem of the strength of leadership and locus of power in our colleges and universities. These conditions argue, not for the abandonment by the president of his traditional position of leadership and control, but for a careful

* Harold Willis Dodds, "The University Presidency," *Transactions and Proceedings of the National Association of State Universities*, LVII (1959), 18-24.

analysis of conditions in his institution that contribute to the development of new plans of organization and new techniques whereby faculty and administrators work as a team, and thus enhance, rather than destroy, the prestige and force of the president's position.

Fourth, a most important factor, already mentioned, is the maintenance of free and open two-way channels of communication between the administration and the faculty. No matter how persistent they may be in their prejudices or how ruggedly they may cling to their power of control, faculty members are not immune to the argument of factual evidence. In fact, the scholarly orientation of faculty members, which often leads them to distrust "practical" research, also leads them to recognize that it is the essence of scholarship to look at facts before drawing conclusions. Therefore, provisions for dissemination of the findings of studies and their implications, and provisions for open discussion, greatly improve understanding between the administration and the faculty and aid in breaking down barriers to change. Concerning this type of approach the director of a university bureau of institutional research said, "In such cases, the changes which take place come about as much by the process as they do by the results."

Fifth, the time factor is often overlooked, but can be of great importance. When a new president comes into an institution, there is a sense of expectancy and uncertainty on the part of the faculty that may provide a setting for initiating changes before resistances become too deeply entrenched and the forces of opposition too firmly aligned. Even so, this advantage of a novice will not justify administrative short cuts that preclude faculty consideration of proposed changes. The time factor is important, too, in putting plans into effect once they have been agreed upon. The introduction of new types of courses may call for considerable reading, planning, and thinking before members of a faculty feel ready to undertake teaching the courses. To insist that the courses be offered before the faculty has become properly oriented to the idea and has had time to make mature plans is likely to spell failure. To strike while the iron is hot has its forceful application in college administration. To strike before the iron is hot forebodes failure; and procrastination may result in the abortion of a promising idea. There must be

a sensitivity on the part of all concerned with contemplated change as to the time when the optimum degree of readiness has been achieved.

General Comments

Quality is the key word in higher education today. How to maintain and improve quality under changing conditions and new stresses is a major issue confronting our colleges and universities. Boards of trustees, administrators, and faculties must make important decisions about goals, policies, programs, operations, and outcomes in the institutions for which they are responsible. *To make wise decisions, data that only institutional research can provide are indispensable.* In the development of a program of institutional research several guiding principles should be kept in mind. Particularly important are the following:

To be of the greatest service in improving higher education, institutional research must be planned. To plan well requires that a comprehensive overview be taken to identify the crucial issues, both immediate and long range, with which the institution is confronted. Research projects, immediate and long range, related to these issues can then be formulated. Projects thus formulated should be arranged in an order of priority on the basis of criteria to be agreed upon.

Responsibility for the over-all coordination and direction of institutional research should be centralized. The lack of central coordination is likely to result in wasteful duplication or costly oversight of needed studies. Even in small institutions it is highly desirable that a person or committee be charged with responsibility for promoting, planning, and conducting essential institutional research.

Even though responsibility for institutional research is centralized, provision should be made for wide participation by members of the faculty and administration in planning and conducting projects. An office of institutional research cannot operate effectively in splendid isolation. Participation by the faculty in institutional research not only educates the faculty member to the issues with which the institution is confronted but also prepares him to consider sympathetically the implications of research findings. Time and

money spent in institutional research can be justified only in terms of its immediate or long-range impact.

Institutional research must be adequately financed. Boards of trustees and legislative committees too often do not understand the importance of institutional research and consequently do not look with favor on a budget item for it. The faculty, likewise, tends to look askance at the use of funds for institutional research which, in its opinion, might more appropriately be made available for departmental use. Nevertheless, institutional research to be fully effective must be adequately supported.

This brief discussion will have achieved its major purposes if it has added to the reader's understanding of the importance of institutional research; given a sense of the sweep of institutional research and of the pressing nature of some problems calling for research; provided a grasp of the advantages and disadvantages of various plans for the organization and conduct of research with full recognition that each institution must develop a plan appropriate to its own needs and conditions; and given inspiration to promote and participate in research because of the evidence of its impact on institutional programs and operations.

APPENDIX A

Institutional Problems on Which Boards Must Make Policy Decisions

SEVERAL ACTUAL SITUATIONS IN WHICH BOARDS HAVE HAD TO MAKE decisions point up the importance of their policy-making functions and the need for factual data to enable them to make wise decisions.

- A junior college is located in a rapidly growing industrial area where there is a large demand for engineers and management personnel. The dean, supported by some leading citizens, urges strongly that the college become a four-year, degree-granting institution with special emphasis on engineering and business administration. The controlling board of the college must decide, on the basis of the best advice and information it can get, whether this change should be made.

- A church-related college, once the center of denominational interest, finds itself, as a result of gradual social and economic shifts, in an entirely different situation. Young people of the church, who formerly came long distances to attend the college, now attend other institutions. Both the percentage of denominational students enrolled and the amount of financial support received from the church are negligible. Yet the denomination exercises certain types of control that are not always to the college's best interest. The board of trustees must decide whether to continue in the somewhat untenable situation, whether to separate the college from any church affiliation, or whether to seek an affiliation with another denomination that already provides many students and could give fairly generous financial support.

- A college whose location was originally quite far from an industrial city, and whose campus was amply large, now finds itself

surrounded by industrial development and, owing to the sale of land during hard times, has a campus too small for satisfactory plant development. Should the college purchase adjacent properties at a high price; should it sell this campus and buildings to commercial enterprises and cease operations; or, should it sell the plant, acquire a new site, and build a new institution? The many considerations involved in such a choice are obvious, but a board must identify them and get all the facts before making its decision.

- Two colleges, one for men and one for women, are located in the same city and practically within walking distance of each other. Steps are initiated by one board to arrange for the exchange of students, professors, and courses in order to use fully the faculty, facilities, and programs of both institutions, and at the same time achieve the benefits of coeducation. The trustees of the college to whom this proposal is made must decide, on the basis of facts many of which are best derived from research, whether to cooperate or to continue operating independently.

APPENDIX B

Examples of How Institutional Research May Be Organized

A FEW SPECIFIC EXAMPLES OF HOW INSTITUTIONAL RESEARCH IS conducted follow.

● While organized institutional research is found less frequently in junior colleges than in four-year institutions, there are notable exceptions. Such an exception is found at Stephens College which appointed its first director of institutional research almost forty years ago. Since then, this unit has played an important role in the continuing evaluation and development of its educational program. A current bulletin of the college characterizes this service as follows:

Of paramount importance is the fact that the research service was established as a service agency to the entire faculty, and not as a department which would carry on necessary studies independently of the faculty. Its functions of lending technical assistance and of coordinating the research efforts of the campus have stimulated the members of the staff to investigation of their problems. Under such a plan the research program of the college is carried forward, not by a few individuals, but by the entire faculty.

At Stephens College the director of research has ordinarily served on a part-time basis and, while on the campus, has advised on research and has been consultant to members of the faculty who wish to discuss projects with him. The emphasis on experimentation and institutional research in this college and their impact on the educational program has brought the institution national recognition.

● While it is somewhat unusual to find a centralized research bureau in a junior college, quite a few of the larger universities have such bureaus, and more are being established each year. Repre-

scutative of a bureau responsible for conducting and coordinating most, but not all, of the institutional research is the one at the University of Minnesota, whose beginning dates back more than three decades and whose research contributions are nationally known. A full-time director of the bureau is administratively responsible to the academic vice-president. His staff, in addition to an office supervisor and two secretaries, consists of an assistant director, three research associates, and a number of research fellows and assistants. The bureau is organized into two major divisions—general educational research and administrative research. The functions of the bureau, subject to constant revision on the basis of experience, are suggested by the following statement:

1. To facilitate institutional research (within personnel and budgetary limits) by providing assistance to members of the university staff in the design and conduct of projects proposed to or sponsored by the bureau. Such assistance may include help in planning the investigation, in selecting or developing appropriate research instruments, in collecting and processing the required data, and in preparing or editing reports of the completed investigation.
2. To provide college educators of the state, including the university staff, with consultative assistance on problems of higher education that are open to systematic study.
3. To develop and execute plans for cooperative research on problems of higher education with the state department of education or other educational agencies and organizations, provided such research promises to contribute to the university's own educational program as well as to that of other higher education.
4. To prepare or edit (a) bibliographies in higher education having values for other than purely instructional purposes and (b) critical summaries of institutional research pertaining to topics related to current problems in higher education.
5. To aid selected university graduate students by providing apprentice training in the techniques and execution of research.

The outstanding achievements of this bureau are the product of several factors of which the following are readily identifiable: the strong, continuing support given by the central administration; the competence and wisdom of the staff which inspired the confidence of both the faculty and the administration; and the guidance and assistance given by a faculty advisory committee—the Senate Committee on Institutional Research. The Senate Committee has played a particularly important role in (a) recommending broad policies governing the program of institutional research, (b) stimulating

and coordinating research on educational problems of the university, (c) providing special committees with consultative service on the selection and conduct of studies, (d) making recommendations regarding the bureau's publications, and (e) reviewing periodically the activities and services of the bureau. In commenting on the background and development of this bureau, Eckert and Keller have this to say:

But the achievements in educational research were not the products of committee efforts alone, for the success of the Minnesota program has been due in a large measure to the involvement of the faculty as a whole. This is not a program of research dictated by deans and presidents but one shaped primarily by faculty members who identified problems in their own teaching or counseling and volunteered to aid in the study of them. No brief statement could acknowledge properly the faculty's contribution—in suggesting ideas for study, in taking active responsibility for these investigations, and in helping to project on the basis of such findings certain needed changes or differences in the university program.¹

• Departures from a centralized institutional research bureau toward various forms of decentralization are found in other universities. In a university of medium size enrolling about 9,000, institutional research stems from three sources: a faculty-administrative committee with membership rotating on a three-year basis, the office of the vice-president, and the office of the registrar. In this institution there is a marked degree of decentralization with little provision for over-all coordination. The faculty-administrative committee has conducted an institutional self-study and has developed studies of faculty promotion, enrollment projections, library services, institutional objectives, curriculum, extension services, and appropriation requests. The vice-president has made studies of space utilization and has brought to the campus consultants on planning for the university's future development. The registrar has limited his studies largely to admissions policies.

¹ Ruth E. Eckert and Robert J. Keller (eds.), *A University Looks at Its Program* (Minneapolis: University of Minnesota Press, 1954), p. 3.

APPENDIX C

Changes Attributed to the Impact of Institutional Research

FROM MORE THAN SEVENTY REPLIES TO THE REQUEST FOR EXAMPLES of significant changes that have resulted from institutional research a few of the more impressive ones may be noted. In order to avoid losses and distortions that may result from attempted summaries, extensive quotations from the reports with only minor editorial changes are given.

• An interoffice memorandum in a large private metropolitan university summarizes the impact of a study of instructional programs as follows:

For your information I am summarizing below the reports I have received from seven of the deans on the uses the schools have made of the study of the instructional programs. You will recall that the study covered ten of the degree-granting schools. Those of the schools covered which are not included in this report are Graduate School of Business Administration, Graduate School of Public Administration and Social Service, and Law, each of which has in its own way a somewhat atypical situation, so far as the applicability of the study data is concerned.

1. *Effects on programs for 1959-60:* All seven deans reported that the study has been useful in specific ways in planning the educational program for next year.

a) The schools plan for larger classes.

(1) The number of sections of a given course is reduced; for example, one school reports dropping as many as twenty sections.

(2) Many courses showing small registration over a period of time were cancelled or put on an alternating basis. In a single department in one school, forty-one classes were rescheduled to alternate every two or three years.

b) Sections of courses previously taught by part-time faculty were reassigned to full-time staff wherever possible.

- c) The study data were used as the basis for determining the need for new faculty.
- d) The study results substantiated the School of Commerce in the work already under way there in reducing course duplication and using large sections.
- e) The study enabled the Schools of Commerce and Education to plan jointly a more effective use of the program in secretarial studies.

2. *Effects on long-range program planning:* There were many indications that acquaintance with the purpose and findings of the study will have a long-range effect on the programs of the several schools in the following ways.

- a) The schools report that they were led to examine the reasons for small classes. In some areas they were planning efforts to build up registration.
- b) Courses that seemed questionable or borderline cases were marked for later review.
- c) The schools indicate that they have been stimulated to re-examine traditional assumptions regarding class size and regarding the fragmentation of disciplines into numerous courses.
- d) There are also instances in which the study has stimulated in the schools local status studies of means for measuring teacher contribution to the educational program.
- e) A high "student credit-hour production" factor, as emphasized in the study, has been taken as a goal in the schools where this factor, until now, has been low.
- f) The schools plan to continue to use the study each year to spot small classes and to help in deciding staffing problems.

Obviously it would be difficult, if not impossible, to give a strict cost accounting of savings involved in the activities listed above. Just as obviously, savings have been effected and will continue to be. My office will continue to examine the study this summer to ascertain how we can expand its uses in the budget-making process.

• From the director of the Bureau of Institutional Research at the University of Minnesota, comes the following statement:

It is extremely difficult to single out one study which has had the greatest impact because studies can influence procedures and operations in so many distinct ways and over varying periods of time. Probably some of the experimental studies in class teaching methodology could be specified as having had the most immediate impact upon operational procedures at a low level. But I have assumed that you prefer studies which brought about broader changes in the institution. The following studies were among those which created the greatest amount of faculty and administrative discussion and were found most useful in planning programs or operational procedures.

The 1941-42 faculty load study and the university curriculum survey, also in 1942. Data from the faculty load study were found to have been

used by individual colleges in making decisions concerning new appointments and replacements of staff and in apportioning teaching loads. These data were also especially valuable in the preparation of the budget for the Army and Navy training programs because the data provided specific and accurate information concerning the usual teaching loads in the several colleges involved—essential information in dealing with government contract negotiators. Similarly, these data provided a basis for restricting the teaching load in the military programs to a reasonable size.

Data from the university curriculum study resulted in careful consideration of the curriculum offerings by the several colleges and departments in the university and in some marked cutbacks in the number of course offerings, or adjustments in courses to eliminate duplication and overlap.

Probably the study which had the most recent impact upon the university and elsewhere is the rather comprehensive study of the university summer session. Several studies around the country are being patterned after ours—to my knowledge the first comprehensive analysis of this kind.

The data of the summer session has informed me that the results are being studied by several department heads and faculty groups, that co-curricular offerings had already been changed this summer as a result of the study, and that the findings are being used in several other ways. His, too, has received many letters of inquiry from other summer sessions.

Typical of studies that have been made on lesser scale but which have influenced university policy is the series of studies of foreign language requirements for the Ph.D. As a direct result of the foreign language studies, Ph.D. candidates in most departments today have the option of taking examinations in two foreign languages, or in one foreign language and one collateral field or other research skill.

• Another state university, which shall remain anonymous, where many institutional research projects have been carried on over the years, but where a bureau of institutional research was only recently established, made a very informative report from which the following excerpts are taken.

If one wants to influence decisions on the basis of research in an autocratic type of institution, the thing to do, of course, is to tell a dean or president on findings and let him issue the edict accordingly. The faculty may readily defeat these by following the form but not the spirit of the edict. Furthermore, the research person who relies on such methods soon gets in bad odor with the faculty.

The second approach is to work in more of an evaluative fashion in which as many people as possible are involved. In such cases, the changes which take place come about as much by the process as by the result.

Now as to some examples of ways in which particular research projects have influenced the program:

1. At the time when the general education program was set up in 1944, some of the professional and technical school people were quite sure that no general education requirement of any scope could be required without infringing on their own requirements. A survey of the pattern of work taken by seniors in each of the various schools showed that in all colleges except engineering, students were taking liberal arts courses to the extent of 45 quarter hours or more, but that the pattern of courses taken made practically no sense. It seemed to me that following the presentation of these data, the opposition to the 45-hour requirement pretty well faded.

2. For some period of years, entrance examinations were required of all students who failed to meet our regular admission requirements (which included a number of points of which the most potent was standing in the upper 50 percent of the graduating class). Large numbers of students came to the campus and took the entrance examinations in groups of anywhere from 50 to 200, with never more than half of them achieving admission. The net result, we found, on an evaluation study, was a considerable amount of ill feeling and a waste of a great deal of time by individuals and their parents coming back to the campus or calling back and arguing about the decision. Out of this emerged a recommendation that the examination admission process be regarded as a counseling function, and it was so handled for a number of years, with far more satisfactory results and no loss of precision in the decisions made. . . .

3. Over several years we have conducted a careful study of all dropouts. On the part of many people, although not all, this study produced a shift in point of view and some shift in the handling of these matters in the dean's office and the registrar's office. Something like 40 percent of our dropouts had a 2.2 average or better, whereas the tendency in the past has been to regard all dropouts as good candidates. Related to this, we were able to show that the flexibility of the preference change brought about by the basic college program reduced dropouts, and we were also able to show that something like 50 percent of our graduating seniors had made a significant preference change. The departmentally orientated people were inclined to be critical of the ease with which the preference could be changed and doubtful of the nonpreference category. Again, when they had the opportunity to examine for themselves the data on this matter, they shifted ground.

• Two specific projects that had a decided impact on an institution's practices were reported by the director of the Office of Institutional Research and Service at Florida State University.

One study related to the program of graduate assistantships which had developed somewhat haphazardly from the time that graduate work was first introduced in 1948. The proportion of the student's time for which services were required ranged from one-tenth to full time; stipends for half-time service varied from \$600 in one department to \$2,200 in another; the types of service required varied from research and teaching to routine typing and filing. On the basis of these facts and other information secured

from within and outside of the university, the amount of service time required was reduced to three categories, one-fourth, one-half, and three-fourths; the stipends were regularized and increased in amount; appropriations for assistantships were substantially increased; and policies regarding the type of work to be required of assistants were adopted.

The other study had to do with the number of small classes at Florida State University. Using the definition of small classes agreed upon by the Council of Deans (freshman and sophomores, 11 or fewer; junior and senior, 6 or fewer; graduate, 4 or fewer), the Office of Institutional Research and Service found in 1953 that 21.3 percent of the classes were "small." The mean class size was 17.4. Continued studies and analyses over a five-year period showed a reduction of "small" classes from 21.3 percent to 11.2 percent. During the same period the mean class size increased from 17.4 to 27.5. There was also a marked reduction in the number of directed individual studies, which initially was unjustifiably high.

• The president of the University of Delaware, commenting on the institution's research, says his university "has profited greatly from institutional research already undertaken." This has been especially true in the following areas:

1. Investigations into the management of the university, its organization and procedures, have resulted in decisions which have reduced operating costs, provided more efficient service to faculty and students, and reduced the need for personnel.
2. Our studies of class size, teaching loads, and instructional costs have enabled us to make decisions which have greatly reduced the cost per credit hour of instruction without any reduction in quality; have effected a more efficient use of classrooms and laboratories; and have allowed an orderly increase in faculty as teaching load demanded.
3. Investigations into why our students fail have been most helpful to faculty advisors and counselors in the dean of students office.
4. Our long-range planning study has provided a firm projection of enrollments in which the university has some confidence. Upon it we have projected our needs for staff and buildings. These data have been most helpful to us in the preparation of our request for operating funds and new buildings from the legislature and in the development of a master plan for the growth of the university.

• Lest it be concluded that the impact of institutional research is felt only in the larger universities, one further illustration is drawn from Hope College. Others could be cited. The college is a private, liberal arts, church-related institution of medium size, enrolling about 1,000 students. One study which the college just completed was on teaching for the development of thinking abilities and habits.

The full report is most informative but is too long to be quoted in its entirety. The faculty committee responsible for the study concluded that:

the causes for the hesitancy or even inability of college students to think soundly and effectively are many. Among the central general causes are these: (1) inaccurate perception, (2) fuzzy or unground conceptualizing, (3) emotional blocks, (4) lack of motivation, (5) ignorance of general methods of proceeding in thinking tasks, (6) lack of developed skill in wrestling with questions or problems, (7) lack of specific data or knowledge requisite for solving a particular question or arriving at a sound judgment.

The impact of the study is reflected more specifically in the effect of its findings on the teachers themselves. The committee observed that:

1. They came to realize how little they really knew about the way people learn. As far as the growing literature of educational psychology is concerned, they were relatively illiterate (except for the psychologists in the group).

2. They came to realize how little they really knew about what kind of mental activity is going on in their students. This was brought home forcefully when they sought to record in diary form the mental activity of students that occurred in their own classrooms and again when they tried to discern what type of contributions led to student answers to examination questions.

3. They came to realize how imperfect was their appraisal of student ability to use the facts and ideas of the course in arriving at generalizations testing validity or solving problems. It was this realization that led, during a summer workshop period and after, to the examination of their tests and their methods of using these instruments. It was this realization, too, that led to the search for some general test and to the administration of the Watson-Glaser test, Critical Thinking Appraisal, to freshmen and seniors. It was this realization that led one study committee member to secure appraisals of the thinking abilities of her students from other instructors (both college and high school), and another member to secure from upper-class students a self-appraisal of their growth in these abilities.

4. They became more convinced of the importance of these thinking abilities and habits and of the need for them, as teachers, to work consciously toward the development of these habits in their students.

5. They became more convinced that, to achieve these skills and habits, a real understanding of the principles of logical reasoning and practical familiarity with general problem-solving procedures—in their qualitative and quantitative aspects—would be a helpful base for every college student and that a guided experience such as the college course aiming at these objectives should be available for all students some time during their first year in college.

6. They felt, in general, that their own teaching had not been as intelligently planned as it should have been to help the student progress step by step in developing the skills he needs. At this point, however, there seemed to be enough divergence of judgment among the committee members to reach further statement. The divergence seemed to be twofold. The first difference of opinion was on the importance of the objectives in particular courses. . . . The second point of divergence concerned the method of teaching for development of these thinking powers and habits. . .

7. They came to realize that effective use of discussion in the classroom situation is a good general method for promoting thinking abilities and habits. At the same time, leading discussions effectively for these purposes is a complex art that involves skillful techniques. It by no means is the only method of developing thinking skills and habits and is not always the best method.

AMERICAN COUNCIL ON EDUCATION

ARTHUR S. ADAMS, *President*

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